Testzentrum Technik und Betriebsmittel



REPORT on test in accordance with OECD STANDARD CODE 2 for the Official Testing of Agricultural Tractor Performance

OECD No. 2/2 237
21st April 2005

Agricultural Tractor

John Deere 6215 NA PowerReverser (4WD) TIER 2

Manufacturer

DEERE & COMPANY. Moline, Illinois, USA

This is a report on a tractor test in accordance with OECD STANDARD CODE for the Official Testing of Agricultural Tractor Performance (C(2002)17(FINAL), "Red Code", Code 2).

It does not contain an evaluation of the tractor on practical work.

Duration of tests: November 2004 till January 2005

DLG-Test Center Technology and Farm Inputs, Max-Eyth-Weg 1,
D-64823 Gross-Umstadt

This report has been approved by the OECD Co-Ordinating Centre (CEMAGREF, France) as being in accordance with the OECD STANDARD CODE

Date of approval: 21st April 2005 OECD No.: 2/2 237

Statement

The information opposite each item has been validated by the Testing Station. An item marked [C] indicates to the test report user that the information declared by the manufacturer has been checked; an item marked [D] indicates that the manufacturer's declaration has been endorsed.

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[C]	Tractor manufacturer's name and address:	DEERE & COMPANY, Moline, Illinois, USA
[C]	Location of tractor assembly:	JOHN DEERE Werke Mannheim, D-68163 Mannheim
[C]	Submitted for test by:	Manufacturer
[C]	Selected for test by:	Manufacturer with agreement by DLG
[D]	Place of running-in:	Mannheim and Gross-Umstadt
[D]	Duration of running-in:	Engine 54 h, tractor 54 h
[C]	Location of test:	DLG-Test Center Technology and Farm Inputs, D-64823 Gross-Umstadt

1 SPECIFICATIONS OF TRACTOR

1.1 Identification

1.1.1

[C]	- Make:	JOHN DEERE
[C]	- Model:	6215
[C]	- Type:	4WD, full frame design

1.1.2 Numbers

[D]	- 1st serial No.:	316456 (1st September 2001)
[C]	- Serial No.:	424002

1.1.3 Other specifications:

[C]	- Region version:	NA
[C]	- Transmission version:	Power Reverser, 30 km/h
[D]	- Engine version:	exhaust emission according to TIER 2, EPA and guideline 2000/25/EG

1.2 Engine

[C]	Make/Model/Type:	JOHN DEERE / 4045TL272 (DD20849) / water-cooled 4-stroke Diesel-engine, direct injection, supercharged, antivibration mounted
[C]	Serial No.:	867812

1.2.1	Cylinders	
[C]	Number/disposition:	4 / vertical in line
[D]	Bore/stroke:	106.5 mm / 127 mm
[C]	Capacity:	4525 cm^3
[D]	Compression ratio:	16.9 ± 0.5 : 1
[D]	Arrangement of valves:	Overhead valves, 2 per cylinder
[D]	Cylinder liners:	Wet
1.2.2	Supercharging	
[C]	- Make / Model / Type:	CZECH / K27 112 (RE518821) / exhaust driven supercharger with SAMSUNG water cooled intercooler (by low temperature section of water cooler)
[D]	- Pressure	Max. 69 ± 1 kPa
1.2.3	Fuel system	
[C]	- Fuel feed system:	Electrical vane type fuel supply pump
	- Fuel filter	
[C]	Make/Model:	JOHN DEERE / -
[C]	Type :	2 replaceable paper element filter
[D]	- Capacity of fuel tank:	165 dm^3
	- Injection pump	
[C]	Make/Model:	STANADYNE / F4 DE2435-5805 (RE518166)
[C]	Type:	DE10; distributor injection pump with timing device
[C]	Serial no.:	10837081
[C]	Manufacturer's production setting:	69 ± 3 mm^3/stroke at full load and rated speed;
[C]	Flow rate:	19 ± 0.8 dm^3/h at 2300 min^{-1} and full load
[C]	Timing:	electronically controlled
	- Injectors	
[D]	Make/Model:	STANADYNE / 35107
[D]	Type :	Multi hole
[D]	Injection pressure:	26.3 ± 0.25 MPa

1.2.4	Governor	
[D]	- Make/Model/Type:	STANADYNE / - / electronically driven all speed governor
[C]	- Governed range of engine speed:	850 ± 50 to 2460 ± 50 min^{-1}
[C]	- Rated engine speed:	2300 min^{-1}
1.2.5	Air cleaner	
	- Pre-cleaner	
[D]	Make/Model:	DONALDSON / 991220
[C]	Type:	vacuum aspirated (cooling fan) cyclone type pre-cleaner integrated in front cover of main cleaner housing
[C]	Location of air intake:	Above water cooler, below bonnet
	- Main cleaner	
[D]	Make/Model:	DONALDSON / 991220
[C]	Type:	Dry paper element filter with additional safety cartridge
[C]	- Maintenance indicator:	Warning light on dashboard
1.2.6		
[D]	Lubrication system	Pressure lubrication with engine oil/cooling water heat exchanger in engine block
[D]	- Type of feed pump:	Gear pump
[C]	- Type of filter:	Full flow, replaceable cartridge
[C]	- Number of filters:	1
1.2.7	Cooling system	
[C]	Water cooling (high temperature section of water cooler)	
[C]	- Type of coolant:	Water-anti-freeze mixture
[D]	- Type of pump:	Impeller pump
	- Specification of fan	
[C]	Number of fan blades:	9
[C]	Fan diameter:	600 mm
[D]	- Coolant capacity:	13.5 dm^3

[C]	- Type of temperature control:	Thermostat and by-pass circuit, BEHR viscous drive fan, belt driven; variable fan speed controlled by air flow temperature
[D]	- Superpressure system:	70 ± 20 kPa
1.2.8	Starting system	
[C]	- Make/Model/Type:	BOSCH EV / 12V / 0 001 230 002 (RE506589) electrical, solenoid pre-engaged drive starter motor, gear reduction starter
[D]	- Starter motor power rating:	3 kW
[C]	- Cold starting aid:	Heating spiral in air intake manifold
[C]	- Safety device:	Forward / reverse lever in neutral position at engine shut off
1.2.9	Electrical system	
[D]	- Voltage:	12 V
	- Generator:	
[C]	Make / Model / Type:	BOSCH / 14 V / 90 A / 3-phase alternator
[C]	Power:	1.68 kW
[C]	- Battery:	1 lead acid battery, 12 V / 154 Ah at 20 hours rating
1.2.10	Exhaust system	
[C]	- Make/Model/Type:	EBERSPÄCHER / AL82411 / single-chamber absorption type, oval 175 mm x 275 mm / 215 mm long
[C]	- Location:	Under bonnet, vertical stack at right A-post of cab, mouth showing upward / forward
1.2.11		
[D]	Operating hours meter:	Electronic, counts real hours when engine is running
1.3	**Transmission**	
1.3.1	Clutch	
[D]	- Make/Model/Type:	JOHN DEERE / - / wet multi-plate
[D]	- Number of plates:	3
[D]	- Diameter of plates:	225 mm
[C]	- Method of operation:	By pedal and reverse lever, mechanically, assisted by low pressure hydraulic circuit, operated by valve

1.3.2 Gear box

[C] - Make/Model/Type: JOHN DEERE / Power Reverser, 30 km/h / mechanical, 30 km/h version

[C] - Description: Speed change gear with 4 forward speeds and 4 reverse speeds (1, 2, 3, 4; synchronized), Range gear with 4 ranges (A, B, C, D; synchronized); power shifted reversing gear (power reverser)

		Forward	Reverse
[C]	No. of gears	4	4
[C]	No. of ranges	4	4
[C]	Total	16	16

3 levers

[D] - Available options (not fitted): SynchroPlus (12/4) 30 km/h, with or without creeper gear
PowrQuad (16/16) 30 km/h, with or without creeper gear

[D] - Lubrication: Forced-feed lubrication, oil cooler (ring cooler) at the rear end of engine block, (low temperature section of water cooler), 2 filters

1.3.3 Rear axle and final drives

[D] - Make/Model/Type: JOHN DEERE / - / bevel gear drive with bevel gear differential and planetary final drives

- Differential lock:

[D] Type: Wet multi-plate

[C] Engagement: Electro-hydraulically by foot switch

[C] Disengagement: By pedal of service brake

1.3.4 Front axle and final drives

[C] - Make/Model/Type: DANA 730/103 / AL 159 609 / swing axle, driving and steering; axle driven through wet multi plate clutch, shaft in median plane of tractor, bevel gear;
clutch electro-hydraulically operated by rocker switch (two positions: engaged / engaged by service brake operation); planetary final drives

- Differential lock:

[D] Type: Limited slip multi-plate type

[C] Engagement: Automatic

[C] Disengagement: Automatic

1.3.5 Total ratios and travelling speeds

	Range	Gear	Number of engine revolutions for one revolution of the driving wheels	Nominal travelling speed*) at rated engine speed of 2300 min^{-1} km/h
	Forward Speed			
[C]	A	1	362.65	1.84
[C]		2	279.15	2.39
[C]		3	201.04	3.32
[C]		4	157.75	4.23
[C]	B	1	180.91	3.69
[C]		2	139.26	4.79
[C]		3	100.29	6.66
[C]		4	78.70	8.48
[C]	C	1	110.01	6.07
[C]		2	84.68	7.88
[C]		3	60.98	10.95
[C]		4	47.86	13.95
[C]	D	1	53.42	12.50
[C]		2	41.12	16.24
[C]		3	29.61	22.55
[C]		4	23.24	28.73
	Reverse Speed			
[C]	A	1	347.42	1.92
[C]		2	267.42	2.50
[C]		3	192.59	3.47
[C]		4	151.13	4.42
[C]	B	1	173.32	3.85
[C]		2	133.41	5.00
[C]		3	96.08	6.95
[C]		4	75.39	8.86
[C]	C	1	105.39	6.34
[C]		2	81.12	8.23
[C]		3	58.42	11.43
[C]		4	45.85	14.56
[C]	D	1	51.18	13.05
[C]		2	39.39	16.95
[C]		3	28.37	23.53
[C]		4	22.26	29.99

*) Calculated with a dynamic radius index of 770 mm
(in conformity with ISO 4251-1:1998)

[D] - Number of revolutions of front wheels for one revolution of rear wheels: 1.3931

1.4 Power take-off

1.4.1 Main power take-off

[C]	- Type:	Independent
[C]	- Method of engagement:	Driven by wet multi-plate clutch with 197 mm dia, electro-hydraulically operated by rotary switch through control valve; response of valve automatically controlled
[C]	- Number of shafts:	1
[C]	- Method of changing power take-off shaft ends and speeds:	Reversible stub giving two different standard speeds

1.4.1.1 Power take-off proportional to engine speed, 540 min^{-1} or 1000 min^{-1} p.t.o.

[C]	- Location:	At rear of tractor
[C]	- Diameter of p.t.o. shaft end:	35 mm
[C]	- Number of splines:	6 (540 min^{-1})in conformity with ISO 500:1991, type 1 21 (1000 min^{-1}) in conformity with ISO 500:1991, type 2
[C]	- Height above ground:	700 mm
[C]	- Distance from the median plane of the tractor:	0 mm
[C]	- Distance behind rear wheel axis:	530 mm

	P.t.o. type	P.t.o. transmission ratio	P.t.o. speed min^{-1}	Engine speed min^{-1}	Power restriction kW	Max. torque transmissible Nm
[D]	540	3.9685	540 580	2143 2300	not specified	
[D]	1000	2.2082	1000 1042	2208 2300	not specified	

[C]	- Direction of rotation (viewed from behind tractor):	Clockwise
1.4.1.2	Power take-off proportional to ground speed:	None
1.4.2	Optional power take-off:	Front p.t.o., independent, not fitted to tractor
1.5	**Hydraulic power lift**	
[D]	- Make/Model/Type:	JOHN DEERE / - / desintegrated, electronically controlled hydraulic power lift, lower link sensing
[C]	- Type of hydraulic system:	Closed center, load sensing pressure and flow compensated system
[C]	- Type and number of cylinders:	2 external cylinders, single acting, 65 mm bore, 175 mm stroke,
[C]	- Type of linkage lock for transport:	Hydraulic, lock of valve lever
[D]	- Relief valve pressure setting:	19.2 to 20.7 MPa
[D]	- Opening pressure of cylinder safety valve:	no safety valve
	- Lift pump:	
[D]	Make:	HEMA Industries
[D]	Model:	-
[D]	Type:	28 cm^3 gear pump with 65 dm^3/min delivery at rated speed

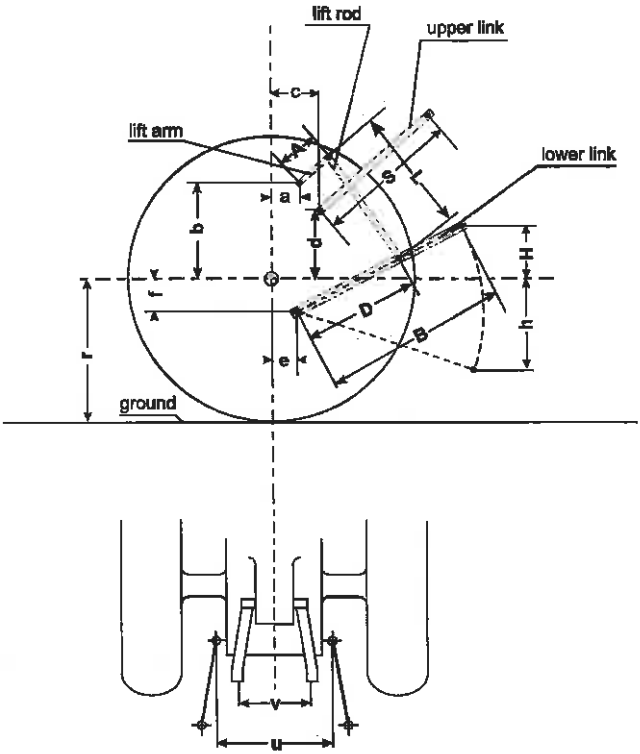
[D]	- Transmission between pump and engine:	Gear driven by transmission
[C]	- Type and number of filters:	2 filters, 1 in feeding line of hydraulic pump, 1 on transmission housing
[C]	- Site of oil reservoir:	Transmission housing
[C]	- Type, number and location of tapping points:	2 double acting, quick-action couplers at rear of tractor
[D]	- Maximum volume of oil available to external cylinders:	Stationary 25 dm^3, driving 15 dm^3
[D]	- Oil cooler:	Engine cooling water / transmission-hydraulic oil heat exchanger at the rear end of engine block

1.6 Three-point linkage:

1.6.1 Three-point linkage at rear:

[C] - Category: 2, in conformity with ISO 730-1/1994 + Cor. 1:1995 with extendable lower links

[C] - Category adapter: None



	Dimensions of rear implement linkage			Projected lengths in mm: Dimensions	Projected lengths in mm: Settings used in test-page 27
[D]	Rear tyres 18.4 - 34 Front tyres 13.6 - 24		(r) *) (r') *)	770 560	
[C]	Length of lift arms		(A)	305	
[C]	Length of lower links		(B)	945	
[C]	Distance of lift arm pivot points from rear wheel axis	horizontal vertical	(a) (b)	180 475	
[C]	Horizontal distance between the 2 lower link pivot points		(u)	480	
[C]	Horizontal distance between the 2 lift arm end points		(v)	535	
[C]	Length of upper link		(S)	from 550 to 730	660
[C]	Distance of upper link pivot point from rear wheel axis	horizontal vertical	(c) (d)	460 185	460 185
[C]	Distance of lower link pivot points from rear wheel axis	horizontal vertical	(e) (f)	135 225	
[C]	Distance of lower link pivot points from lift rod pivot points on lower links		(D)	505	
[C]	Length of lift rods		(L)	from 715 to 860	785

Heights (h, H, H') of lower link hitch points relative to rear wheel axis (situated 770 mm above ground), at different adjustements of L

These data are valid for unloaded power lift

[C]	Length of lift rods	(L)	715	860	785
[C]	Linkage distance of lift rods	(D)		505	
[C]	Lowest position	(h)	385	710	570
[C]	Highest position	(H)	220	-60	102
[C]	Transport position	(H')	220	-60	102

*) Assuming r resp. r' = tyre dynamic radius index (in conformity with ISO 4251-1:1998)

1.7	**Swinging drawbar**			
[C]	- Type:	Adjustable in height and length		
[C]	- Height above ground	Maximum: Minimum:		530 mm 470 mm
[C]	- Type of adjustment:	Turning the drawbar		
[C]	- Distance of hitch point from rear wheel axis	Horizontal:	780 / 880 / 930 / 1080 mm	
[C]	- Distance of hitch point from p.t.o. shaft end	Vertical: Horizontal:		170 / 230 mm 250 / 350 / 400 / 550 mm
[C]	- Lateral adjustment (centre of clevis)	Right/left hand side:	190 / 210 / 225 / 260 mm	
[C]	- Distance of pivot point from rear-wheel axis, horizontally:			0 mm
[C]	- Diameter of drawbar pin hole:			33 mm
[C]	- Maximum permissible vertical load:			27 kN
1.8	**Trailer hitch**	None		
1.9	**Holed drawbar**	None		
1.10	**Steering**			
[D]	- Make/Model/Type:	JOHN DEERE and SAUER-DANFOSS/ - / hydrostatic steering, acting on front wheels		
	- Method of operation			
[D]	Pump:	Steering system connected to main hydraulic circuit		
[C]	Ram:	Integrated cylinder of symmetrical design, 224 mm stroke, 75 mm bore, 36 mm dia of piston rod		
[D]	- Working pressure:	18.5 MPa		

1.11 Brakes

1.11.1 Service brake

[D] - Make/Model/ Type: JOHN DEERE / - / muscle power braking system with hydraulic transmission with additional power fill, oil-immersed disc brake with 2 acting faces on each differential half shaft, disc 313 mm dia

[C] - Method of operation: Pedal operated, acting on rear wheels, front axle drive is automatically engaged when braking

[C] -Trailer braking take-off: None

1.11.2 Parking brake

[C] - Type: Parking lock of transmission

[C] - Method of operation: Range gear lever in "P" position

1.12 Wheels

- Number

[C] Front: 2, driving and steering
[C] Rear: 2, driving

[C] - Wheelbase: 2400 mm

- Track width adjustment:

	Minimum mm	Maximum mm	Adjustment method
[D] Front	1516	2016	adjustable rims
[D] Rear	1612	1912	adjustable rims

1.13 Protective structure

[C] - Make/Model/Type: JOHN DEERE / SG070 / Cab

[C] - Manufacturer's name and address: DEERE & COMPANY, Moline, Illinois, USA

- Protective device

[C] Cab: Welded and screwed profile steel tube construction, mounted on silent blocks, for service (repair) with separate device tiltable to the side

[C] Tiltable / not tiltbale: Not tiltable

- OECD approval

[C] Approval number: 4/0 692

[C] Date of approval: 21st September 2001

1.14 Seat

1.14.1	Driver's seat	Fitted to tractor
[C]	- Make/Model:	Grammer / MSG 83/20
[C]	- Type:	mechanical suspended upholstered seat with backrest and armrests
[C]	- Seat and steering wheel reversible:	No
[C]	- Type of suspension:	Mechanical
[C]	- Type of damping:	Hydraulic
	- Range of adjustment	
[C]	Longitudinal:	195 mm
[C]	Vertical:	380 to 565 mm
[C]	- Safety belt:	Yes
1.14.2	Optional driver's seats	
[D]	- Make/Model/Type:	Grammer/MSG 95A; MSG 95AL; MSG 93; MSG 85 / mechanical suspension or pneumatic suspension
1.14.3	Passenger seat:	Optional, not fitted to tractor tested

1.15 Lighting

Electrical, 12 Volt, according to US legislation

		Height above ground of centre mm	Size mm	Distance from outside edge of lights to median plane of tractor mm
[C]	Headlights	1245	150 x 90	190
[C]	Sidelights	n.a.	n.a.	n.a.
[C]	Rearlights	1750	230 x 45	900
[C]	Reflectors	1710	160 x 25	865

2. TEST CONDITIONS

2.1 Overall dimensions

	Length	Width (track width as in 2.5)	Height at top of	
			protective structure	exhaust silencer pipe
	mm	mm	mm	mm
Unballasted	4100	2300	2750	2685

2.2 Ground clearance

380 mm

- Clearance-limiting part: Bracket for sway blocks

2.3 Tractor mass

Unballasted (with cab)

	Without driver kg	With driver kg
Front	1600	1625
Rear	2640	2690
Total	4240	4315

2.4 Track specifications

Not applicable

2.5 Tyres and track widths specifications

	Front	Rear
Tyres:	Firestone SAT	Firestone SAT
- Dimensions	13.6 - 24	18.4 - 34
- Load index speed index	8 PR	8 PR
- Type	diagonal ply	diagonal ply
- Maximum load (tyre manufacturer's)	15.60 kN	30.00 kN
- Maximum load (tractor manufacturer's)	15.00 kN	28.00 kN
at travelling speed	30 km/h	30 km/h
at tyre inflation pressure	140 kPa	140 kPa
dynamic radius index	560 mm	770 mm
Chosen track width:	1820 mm	1812 mm

2.6 Fuel

- Type: ARAL-Diesel-fuel, in conformity with DIN 51601
- Density at 15°C: At p.t.o. tests 0.8354 g/cm³
  at drawbar power tests 0.8379 g/cm³

2.7 Oils and lubrication

2.7.1 Capacity and change interval

	Capacity dm³	Oil change h	Filter-change h
Engine	16	500	500
Gear box and rear axle	52	1500	750
Front axle	8	1500	-
Rear axle	in common with gearbox		
Final drives (front each)	3	1500	-
Final drives rear (each)	in common with gearbox		
Hydraulic system	in common with gearbox		
Steering	in common with gearbox		

2.7.2 Specifications:

	Recommended	Used during test
Engine oil: Used in engine		Fuchs Titan
Type	engine oil	engine oil
Viscosity	SAE 20W40, 15W40, 10W40, JD PLUS-50, JD TORQ-GARD SUPREME	SAE 15W40
Classification	API CG-4 or CF-4; ACEA - E2 or E3;	API CF-4
Transmission oil: Used in gear box, rear axle, hydraulic system and brake system	John Deere HY-GARD John Deere BIO-HY-GARD	John Deere HY-GARD
Type	transmission oil	transmission oil
Viscosity	SAE 75	SAE 75
Classification	JDM J20C or J20D	JDM J20C
Transmission oil: Used in front axle and front final drives	John Deere HY-GARD, John Deere BIO-HY-GARD or transmission oil	Fuchs
Type	transmission oil	transmission oil
Viscosity	SAE 80W90	SAE 80W90
Classification	JDM J20C	JDM J20C

2.7.3 Grease Multi purpose grease GC-LB

- Number of lubrication points: 18

3 COMPULSORY TESTS

3.1 Main power take off performance

Date of tests: 2004-12-03
Location of tests: DLG-Testing Station Groß-Umstadt
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

Power	Speed		Fan	Fuel consumption			Specific energy
	Engine	P.t.o.		hourly		specific	
kW	min^{-1}	min^{-1}	min^{-1}	kg/h	dm^3/h	g/kWh	kWh/dm^3

Maximum power

3.1.1 At 2-hour test

59.9	2002	907	1256	15.95	19.09	266	3.14

3.1.2 At rated speed

55.6	2298	1041	1285	16.00	19.15	288	2.90

3.1.3 At standard p.t.o. speed

56.6	2208	1000	1286	15.72	18.82	278	3.01

3.1.4 Part loads, the governor hand lever in the position corresponding to maximum power at full load (curve a)

3.1.4.1 the torque corresponding to maximum power at rated speed

55.6	2298	1041	1285	16.00	19.15	288	2.90

3.1.4.2 85% of the torque obtained in 3.1.4.1

48.3	2360	1069	1288	14.99	17.94	310	2.69

3.1.4.3 75% of the torque defined in 3.1.4.2

36.8	2391	1083	1301	13.01	15.57	354	2.36

3.1.4.4 50% of the torque defined in 3.1.4.2

24.7	2413	1093	1312	10.72	12.83	433	1.93

3.1.4.5 25% of the torque defined in 3.1.4.2

12.7	2444	1107	1320	8.32	9.96	656	1.27

3.1.4.6 unloaded

-	2460	1114	1330	6.41	7.68	-	-

Power kW	Speed Engine min^{-1}	Speed P.t.o. min^{-1}	Fan min^{-1}	Fuel consumption hourly kg/h	Fuel consumption hourly dm^3/h	Fuel consumption specific g/kWh	Specific energy kWh/dm^3
3.1.5 Part loads, the governor hand lever in the position corresponding to standard p.t.o. speed at full load (curve b)							
3.1.5.1 the torque corresponding to maximum power							
56.6	2208	1000	1286	15.72	18.82	278	3.01
3.1.5.2 85% of the torque obtained in 3.1.5.1							
49.8	2289	1037	1264	14.87	17.80	299	2.80
3.1.5.3 75% of the torque defined in 3.1.5.2							
37.7	2307	1045	1269	12.64	15.13	336	2.49
3.1.5.4 50% of the torque defined in 3.1.5.2							
25.3	2325	1053	1279	10.37	12.41	409	2.04
3.1.5.5 25% of the torque defined in 3.1.5.2							
12.8	2345	1062	1281	7.93	9.49	621	1.35
3.1.5.6 unloaded							
-	2355	1066	1280	5.46	6.53	-	-

OPTIONAL RESULTS

Power	Speed		Fan	Fuel consumption			Specific energy
	Engine	P.t.o.		hourly		specific	
kW	min^{-1}	min^{-1}	min^{-1}	kg/h	dm^3/h	g/kWh	kWh/dm^3
3.1.6 Part loads at different engine speeds							
3.1.6.1 maximum power at rated engine speed							
55.6	2298	1041	1285	16.00	19.15	288	2.90
3.1.6.2 80% of power obtained in 3.1.6.1 at max. speed setting							
44.4	2371	1074	1303	14.24	17.05	321	2.60
3.1.6.3 80% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed							
44.5	2062	934	1235	12.85	15.38	289	2.89
3.1.6.4 40% of power obtained in 3.1.6.1 with governor control set to 90% of rated engine speed							
22.2	2066	936	1217	8.45	10.11	381	2.19
3.1.6.5 60% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed							
33.0	1375	623	1103	9.03	10.81	274	3.05
3.1.6.6 40% of power obtained in 3.1.6.1 with governor control set to 60% of rated engine speed							
22.0	1373	622	1101	6.60	7.90	300	2.78

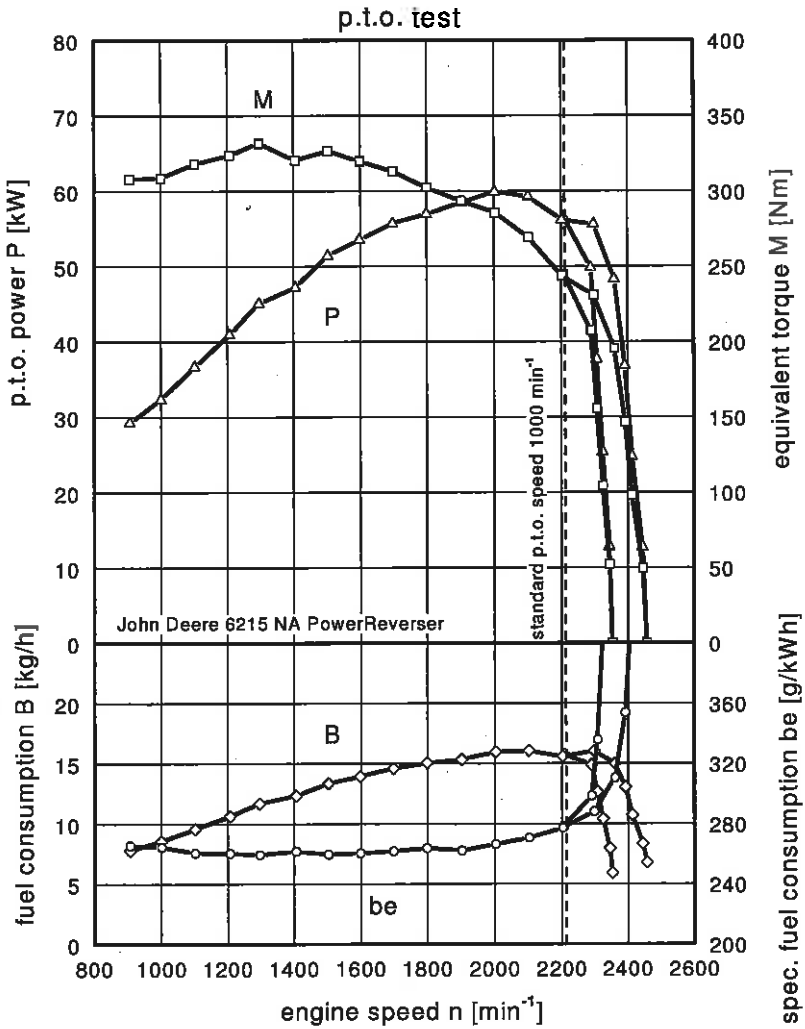
No load maximum engine speed:	2480	min^{-1}
Equivalent flywheel torque at rated engine speed:	231	Nm
Equivalent flywheel torque at 2-hour test:	286	Nm
at engine speed:	2002	min^{-1}
Maximum equivalent flywheel torque:	332	Nm
at engine speed:	1296	min^{-1}

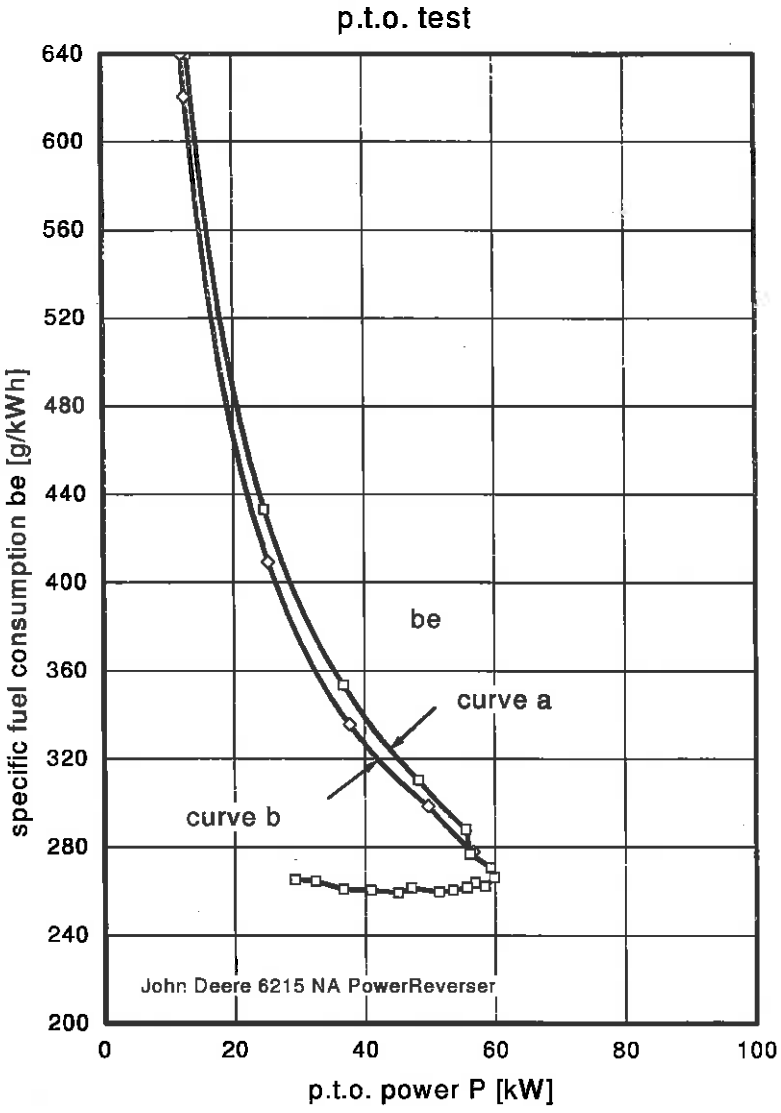
Mean atmospheric conditions

temperature:	19	°C
pressure:	100.0	kPa
relative humidity:	37	%

Maximum temperatures

coolant:	75	°C
oil:	99	°C
fuel:	28	°C
air intake:	18	°C


p.t.o. test
M
P
B
be
John Deere 6215 NA PowerReverser
standard p.t.o. speed 1000 min-1
p.t.o. power P [kW]
equivalent torque M [Nm]
fuel consumption B [kg/h]
spec. fuel consumption be [g/kWh]
engine speed n [min-1]
800 1000 1200 1400 1600 1800 2000 2200 2400 2600
0 10 20 30 40 50 60 70 80
0 50 100 150 200 250 300 350 400
0 5 10 15 20
200 240 280 320 360


p.t.o. test
specific fuel consumption be [g/kWh]
640
600
560
520
480
440
400
360
320
280
240
200
0
20
40
60
80
100
p.t.o. power P [kW]
be
curve a
curve b
John Deere 6215 NA PowerReverser

3.2 HYDRAULIC POWER AND LIFTING FORCE

- Date of tests: 20th January 2005

3.2.1 Hydraulic power test

3.2.1.1 Hydraulic fluid data

- Hydraulic fluid type: Transmission oil
- Viscosity index (ISO 3448+Corr 1:1993): SAE 75
- Viscosity at 65°C: n.a.

3.2.1.2 Compulsory Reporting (Test Results):

	Pressure	Reservoir oil Temperature °C (65°C target)		Engine speed	Flow rate	Power
		Min.	Max.			
	MPa	°C	°C	min^{-1}	l/min	kW
Rated Engine Speed *(Manufacturers Specification)*	-	-	-	2300	-	-
3.2.1.2.1 Maximum (sustained) pressure with relief valve open as measured at the coupler Pump stalled: No	20.7 [1] 20.6 [2]	64 [1] 68 [2]	64 [1] 68 [2]	2407 [1] 2409 [2]	-	-
3.2.1.2.2 Flow rate corresponding to a hydraulic pressure equivalent to 90% of the actual relief valve pressure setting and corresponding hydraulic power	18.6 [1] 18.5 [2]	61 [1] 66 [2]		2411 [1] 2413 [2]	52.0 [1] 55.1 [2]	15.7 [1] 16.9 [2]
3.2.1.2.3 Maximum available flow and maximum power from one coupler pair	1.4 17.8	58 60		2458 2413	67.2 58.5	- 17.4
3.2.1.2.4 Maximum available flow and maximum power from coupler pairs operating simultaneously (flow through two or more coupler pairs if required)	0.9 18.2	60 65		2460 2418	65.9 57.4	- 17.4

Tapping point used for test: At rear of tractor.

[1] 1 double acting control valve
[2] 2 double acting control valves parallel connection

3.2.2 Power lift test at rear power lift

					At the hitch points			On the frame			
Height of lower hitch points above ground in down position					200 mm						
Vertical movement without lifting forces with lifting forces					672 mm 636 mm			889 mm 828 mm			
Max. corrected force exerted through full range					20.95 kN			18.70 kN			
Corresponding pressure					18.6 MPa						
Moment about rear axle					22.65 kNm			31.60 kNm			
Max. tilt angle of mast from vertical					-			13.5 °			
Lifting heights relative to horizontal lower links											
mm	-433	-345	-300	-200	-100	0	+100	+200	+291	+300	+397
Lifting forces at hitch points, corrected to 18.6 MPa											
kN		20.95	22.10	24.95	27.20	29.20	30.90	32.30	32.90		
Lifting forces at standard frame, corrected to 18.6MPa											
kN	18.70		20.70	21.55	22.10	22.20	22.30	22.10		21.65	20.30

3.3 DRAWBAR POWER TEST (unballasted tractor)

Date of tests: 9th December 2004
Type of track: Concrete

	Height of drawbar above ground	Tyre inflation pressure Front	Rear
Unballasted	475 mm	80 kPa	80 kPa

Gear number and range	Power	Drawbar pull	Speed	Engine speed	Slip of wheels	Fan speed	Specific fuel consumption	Specific energy	Temperature Fuel	Coolant	Engine oil	Atmospheric conditions Tempe-rature	Relative humidity	Pressure
	kW	kN	km/h	min^{-1}	%	min^{-1}	g/kWh	kWh/dm^3	°C	°C	°C	°C	%	kPa

3.3.1 MAXIMUM POWER IN TESTED GEARS (unballasted tractor)

A4	43.0	41.89	3.70	2337	14.8	1209	369	2.27	13	54	95	2	63	1009
B2	45.9	42.16	3.92	2195	15.1	1153	349	2.40	15	51	93	2	63	1009
C1	48.5	37.22	4.69	2002	12.1	1133	326	2.57	15	57	97	3	58	1009
B3	48.8	33.48	5.24	2000	10.2	1129	324	2.59	11	56	95	1	63	1009
C2	50.1	28.29	6.37	2001	8.0	1134	314	2.66	15	57	97	2	62	1009
B4	50.3	26.17	6.92	2000	7.0	1127	313	2.68	12	55	96	1	64	1009
C3	50.5	19.88	9.15	2001	4.9	1134	312	2.68	15	57	96	2	62	1009
D1	50.9	17.37	10.55	2004	4.1	1135	311	2.69	15	57	96	2	62	1009
C4	50.6	15.39	11.85	2003	3.5	1138	312	2.69	15	56	96	2	64	1009
D2	49.8	12.92	13.69	2004	2.8	1146	316	2.65	15	57	96	2	63	1009

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Gear number and range	Power	Drawbar pull	Speed	Engine speed	Slip of wheels	Fan speed	Specific fuel consumption	Specific energy	Temperature			Atmospheric conditions		
									Fuel	Coolant	Engine oil	Tempe-rature	Relative humidity	Pressure
	kW	kN	km/h	min^{-1}	%	min^{-1}	g/kWh	kWh/dm^3	°C	°C	°C	°C	%	kPa
	FUEL CONSUMPTION													
3.3.2.1	In selected gear. at maximum power at rated speed													
D1	46.1	13.51	12.28	2301	2.8	1217	343	2.44	15	59	98	8	45	1008
3.3.2.1.1	75 % of pull at maximum power at rated speed													
D1	35.9	10.13	12.75	2374	1.8	1254	392	2.14	15	58	101	8	45	1007
3.3.2.1.2	50 % of pull at maximum power at rated speed													
D1	24.5	6,76	13.03	2405	1.0	1270	488	1.72	15	57	100	8	45	1007
3.3.2.1.3	Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.1.1													
C4	35.9	10.13	12.76	2128	1.8	1171	361	2.32	15	57	97	8	45	1007
3.3.2.1.4	Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.1.2													
C4	24.4	6.76	13.01	2150	0.9	1174	432	1.94	15	56	96	8	45	1007
3.3.2.2	In selected gear nearest to 7.50 km/h at rated speed													
C2	46.4	22.23	7.51	2302	5.8	1218	343	2.44	17	59	99	6	49	1008
3.3.2.2.1	75 % of pull at maximum power at rated speed													
C2	36.5	16.67	7.88	2373	4.0	1249	385	2.18	18	57	100	6	49	1008
3.3.2.2.2	50 % of pull at maximum power at rated speed													
C2	25.0	11.12	8.09	2404	2.3	1269	466	1.80	18	54	98	6	48	1008
3.3.2.2.3	Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.2.1													
B4	36.3	16.67	7.84	2198	3.6	1174	359	2.33	17	55	96	8	45	1008
3.3.2.2.4	Next higher gear at reduced engine speed; same pull and travelling speed as in 3.3.2.2.2													
B4	24.9	11.12	8.06	2221	2.2	1177	431	1.94	16	55	96	8	46	1008

ADDITIONAL TESTS under the responsibility of the DLG Testing Station

Not covered by the approval!

4.1 Measurement of noise at the driving position carried out in accordance with OECD CODE 5

Results of sound level test - "Under load" procedure
Date of test: 8th December 2004
Type of track: Concrete
Type of sound level meter: NORSONIC 118

Gear number and range	Drawbar pull	Engine speed	Measured travelling speed	Number of driving wheels	Sound level
	kN	min^{-1}	km/h		dB(A)
4.1.1	Test with the drawbar pull for which the tractor gives the maximum sound level (gear ratio giving the nearest nominal forward speed to 7.5 km/h and also in any speed settings with a sound level increase of at least 1 dB(A))				
4.1.1.1	All openings closed				
C2	21.83	2300	7.53	4	69.5
D1	13.28	2309	12.29	4	70.5
C4	11.79	2297	13.71	4	70.5
D2	9.77	2309	16.11	4	70.5
C2	22.60	2303	7.16	2	71.0
4.1.1.2	All openings open*)				
C2	21.81	2298	7.53	4	78.5
A1	39.27	2414	1.66	4	79.5
A3	40.23	2374	2.97	4	79.5
D2	9.86	2295	16.03	4	79.5
C2	22.94	2302	7.18	2	78.5
C3	15.83	2300	10.32	2	79.5
D2	10.06	2297	15.67	2	79.5

*) Openings: 2 side windows. rear window

Gear number and range	Drawbar pull	Engine speed	Measured travelling speed	Number of driving wheels	Sound level
	kN	min^{-1}	km/h		dB(A)
4.1.2 Unloaded test in the gear ratio giving the forward speed nearest to 7.5 km/h					
4.1.2.1 All openings closed					
C2	0	2453	8.49	4	70.5
C2	0	2454	8.80	2	72.0
4.1.2.2. All openings open *)					
C2	0	2452	8.48	4	79.0
C2	0	2455	8.41	2	79.0
4.1.3 Unloaded test in the gear ratio giving the maximum forward speed					
4.1.3.1 All openings closed					
D4	0	2460	29.79	2	74.0
4.1.3.2 All openings open *)					
D4	0	2460	29.79	2	82.0

*) Openings: 2 side windows. rear window

5	**REPAIRS**	**None**
6	**REMARKS**	**None**

Head of Vehicle Technology

Test carried out by

Dipl.-Ing. (FH) Ottmar Degrell

Dipl.-Ing (FH) Thomas Feuerstein

Date: 13th June 2005

John Deere 6215 NA PowerReverser (4WD) **DLG-Test No. 2004-391**

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Deutsche Landwirtschafts-Gesellschaft e.V.
Testzentrum Technik und Betriebsmittel
Max-Eyth-Weg 1, D-64823 Groß-Umstadt
Telefon: 0 60 78 / 96 35 0 Fax: 0 60 78 / 96 35 90
E-mail: Tech@DLG.org, Internet: www.DLG.org/landtechnik